

### CLAIMS LISTING

1. (Currently amended) A fluorophosphate glass formed from a composition  
 5    [[comprising]] consisting of:  
      a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 10 to 60 mol percent;  
      a metaphosphate,  ~~$\text{Al}(\text{PO}_3)_3$~~   $\text{Al}(\text{PO}_3)_3$ , from 10 to 60 mol percent;  
      a fluoride,  $\text{BaF}_2 + \text{RF}_x$ , wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
      consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ , from 10 to 80 mol percent; and  
 10    a dopant ~~a rare earth dopant~~ selected from a group consisting of: neodymium  
      (Nd), erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho),  
      praseodymium (Pr), samarium (Sm), europium (Eu); an oxide of manganese (Mn);  
      and mixtures thereof.
  
- 15    2. (Previously presented) A ~~fluorophosphates~~ fluorophosphates glass formed from a  
      composition [[comprising]] consisting of:  
      a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 10 to 60 mol percent;  
      a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 10 to 60 mol percent;  
      a fluoride,  $\text{RF}_x$ , from 10 to 80 mol percent, selected from the group consisting of:  
 20     $\text{BaF}_2$ ,  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ ; and  
      a dopant.
  
3. (Canceled)
  
- 25    4. (Currently amended) The glass as in claim 2 wherein the dopant is selected from  
      the group [[comprising]] consisting of: the rare earth elements: neodymium (Nd),  
      erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho),  
      praseodymium (Pr); samarium (Sm), europium (Eu)[,]; an oxide of manganese  
      (Mn); and mixtures thereof.

5. (Original) The glass as in claim 4 wherein the dopant is selected from the oxides of the rare earth elements.

5 6. (Previously presented) The glass as in claim 4 wherein the dopant on a weight percent basis is 2 to 15 percent.

7. (Original) The glass as in claim 4 wherein the dopant is selected from the fluorides of the rare earth elements.

10

8. (Currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 10 to 60 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 10 to 60 mol percent;

15 a fluoride,  $\text{BaF}_2 + \text{RF}_x$ , wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ , from 10 to 80 mol percent; and

a dopant :  $[[.]]$

the dopant is from 2 to 15 weight percent, selected from the group consisting of:  
the oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb),  
20 thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr); samarium (Sm),  
europium (Eu) $[[.]]$  ; an oxide of manganese (Mn); and mixtures thereof.

9. (currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

25 a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 5 to 90 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 5 to 90 mol percent;

a fluoride,  $\text{BaF}_2 + \text{RF}_x$ , wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ , from 5 to 90 mol percent; and

a dopant :  $[[.]]$

the dopant from 2 to 15 weight percent, selected from the group consisting of: the oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr); samarium (Sm), europium (Eu)[[.]] ; an oxide of manganese (Mn); and mixtures thereof.

5

10. (Currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 10 ~~mol~~ to 45 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 5 to 30 mol percent;

10 a fluoride,  $\text{BaF}_2 + \text{RF}_x$ , wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ , from 45 to 85 mol percent; and  
a dopant : [[.]]

the dopant from 2 to 15 weight percent, selected from the group consisting of: the oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr); samarium (Sm), europium (Eu)[[.]] ; an oxide of manganese (Mn); and mixtures thereof.

15

11. (Previously presented) A fluorophosphate glass formed from a composition  
comprising:

20

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , approximately 10 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , approximately 18 mol percent;

a fluoride,  $\text{BaF}_2$ , approximately 72 mol percent; and

a dopant, approximately 10 weight percent; of the oxide of neodymium (Nd).

25

12. (Currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , approximately 10 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , approximately 18 mol percent;

a fluoride,  $\text{BaF}_2$ , approximately 72 mol percent; and

a dopant, approximately 20 weight percent; of the oxide of erbium (Er).

13. (Withdrawn) A method for making fluorophosphates glass comprising the steps of:

batching the glass components;

5 melting the glass components to form a molten mixture;

cooling the molten glass mixture to a solid states;

annealing the glass in the solid state;

slowly cooling the annealing glass to approximately ambient temperature;

the glass components comprised on a mol percent basis of:

10  $\text{Ba}(\text{PO}_3)_2$  from 10 to 60 percent;

$\text{Al}(\text{PO}_3)_3$  from 10 to 60 percent;

a fluoride selected from the group of  $\text{BaF}_2$ ,  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$  from 10 to 75 percent; and

a dopant from 2 to 15 percent on a mol percent basis selected from the group of

15  $\text{Nd}_2\text{O}_3$ ,  $\text{Er}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Tm}_2\text{O}_3$ ,  $\text{Tb}_2\text{O}_3$ ,  $\text{Ho}_2\text{O}_3$ ,  $\text{Pr}_2\text{O}_3$  and  $\text{MnO}$  and mixtures thereof.

14. (Withdrawn) The method as in claim 13 wherein the melting of the glass is performed in the temperature range of 1,200 °C to 1,250 °C in platinum crucibles in a dry argon atmosphere for from 4 to 5 hours.

20

15. (Withdrawn) The method as in claim 13 wherein the annealing of the glass is performed in the temperature range of 320 °C to 340°C for from 8 to 10 hours.

16. (Currently amended) A fluorophosphate glass formed from a composition

25 [[comprising]] consisting of:

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 5 to 60 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 5 to 60 mol percent;

a fluoride,  $\text{BaF}_2 + \text{RFx}$  wherein  $\text{RFx}$  is selected from a group consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$ , from 10 to 90 mol percent;

a dopant; and

wherein the selection of the mol percent for the fluoride,  $BaF_2 + RF_x$  is a determining factor from which the mol percent of the metaphosphates are selected to provide a 100 percent mol composition for the fluorophosphate glass.

5

17. (Canceled)

18. (Currently amended) The glass as in claim 16 wherein the dopant is selected from the group ~~[[comprising]]~~ consisting of: the rare earth elements ~~;~~ neodymium (Nd), erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho), samarium (Sm), europium (Eu), praseodymium (Pr); an oxide of manganese (Mn); and mixtures thereof.

10

19. (Original) The glass as in claim 18 wherein the dopant is selected from the oxides of the rare earth elements.

15

20. (Previously presented) The glass as in claim 18 wherein the dopant on a weight percent basis is 2 to 15 percent.

20

21. (Original) The glass as in claim 18 wherein the dopant is selected from the fluorides of the rare earth elements.

22. (Currently amended) A fluorophosphate glass formed from a composition ~~[[comprising]]~~ consisting of:

25

a metaphosphate,  $Ba(PO_3)_2$ , from 5 to 60 mol percent;

a metaphosphate,  $Al(PO_3)_3$ , from 5 to 60 mol percent;

a fluoride,  $BaF_2 + RF_x$  selected from the group ~~[[comprising]]~~ consisting of  $CaF_2$ ,  $MgF_2$ ,  $PbF_2$  and  $BiF_3$ , from 10 to 90 mol percent; and

a dopant ~~;~~ [[,]]

the dopant from 2 to 20 weight percent, selected from the group consisting of: the oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb), thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr), samarium (Sm), europium (Eu); an oxide of manganese (Mn); and mixtures thereof.

5

23. (Currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 5 to 90 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 5 to 90 mol percent;

10 a fluoride,  $\text{BaF}_2 + \text{RF}_x$  wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$  and  $\text{BiF}_3$ , from 5 to 90 mol percent; and

a dopant : [[.]]

the dopant from 2 to 20 weight percent, selected from the group consisting of: the  
oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb),  
15 thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr), samarium (Sm),  
europium (Eu); an oxide of manganese (Mn); and mixtures thereof.

24. (Currently amended) A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:

20 a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , from 5 to 45 mol percent;

a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , from 5 to 30 mol percent;

a fluoride,  $\text{BaF}_2 + \text{RF}_x$  wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$  and  $\text{BiF}_3$ , from 45 to 90 mol percent; and

a dopant : [[.]]

25 the dopant from 2 to 20 weight percent, selected from the group consisting of: the  
oxides of the rare earth elements : neodymium (Nd), erbium (Er), ytterbium (Yb),  
thulium (Tm), terbium (Tb), holmium (Ho), praseodymium (Pr), samarium (Sm),  
europium (Eu); an oxide of manganese (Mn); and mixtures thereof; and

wherein the selection of the mol percent for the fluoride,  $\text{BaF}_2 + \text{RF}_x$  is a determining factor from which the mol percent of the metaphosphates are selected to provide a 100 percent mol composition for the fluorophosphate glass.

- 5    25. (Currently amended)    A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:  
a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , approximately 10 mol percent;  
a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , approximately 18 mol percent;  
a fluoride,  $\text{BaF}_2 + \text{RF}_x$  wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
10    consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$  and  $\text{BiF}_3$ , approximately 72 mol percent; and  
a dopant, approximately 5 weight percent: of the oxide of neodymium (Nd).

26. (Currently amended)    A fluorophosphate glass formed from a composition  
[[comprising]] consisting of:  
15    a metaphosphate,  $\text{Ba}(\text{PO}_3)_2$ , approximately 10 mol percent;  
a metaphosphate,  $\text{Al}(\text{PO}_3)_3$ , approximately 18 mol percent;  
a fluoride,  $\text{BaF}_2 + \text{RF}_x$  wherein  $\text{RF}_x$  is selected from the group [[comprising]]  
consisting of  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$  and  $\text{BiF}_3$ , approximately 72 mol percent; and  
a dopant, approximately 10 weight percent: of the oxide of erbium (Er).

20

27. (Withdrawn) A method for making fluorophosphates glass comprising the steps of:  
batching the glass components;  
melting the glass components to form a molten mixture;  
cooling the molten glass mixture to a solid states;  
25    annealing the glass in the solid state;  
slowly cooling the annealing glass to approximately ambient temperature;  
the glass components comprised on a mol percent basis of:  
 $\text{Ba}(\text{PO}_3)_2$  from 10 to 60 percent;  
 $\text{Al}(\text{PO}_3)_3$  from 10 to 60 percent;

a fluoride of  $\text{BaF}_2 + \text{RFx}$  where  $\text{RFx}$  is selected from the group of,  $\text{CaF}_2$ ,  $\text{MgF}_2$ ,  $\text{PbF}_2$ , and  $\text{BiF}_3$  from 10 to 90 percent; and

a dopant from 2 to 20 percent on a mol percent basis selected from the group of  $\text{Nd}_2\text{O}_3$ ,  $\text{Er}_2\text{O}_3$ ,  $\text{Yb}_2\text{O}_3$ ,  $\text{Tm}_2\text{O}_3$ ,  $\text{Tb}_2\text{O}_3$ ,  $\text{Ho}_2\text{O}_3$ ,  $\text{Pr}_2\text{O}_3$ ,  $\text{Sm}_2\text{O}_3$ ,  $\text{Eu}_2\text{O}_3$  and  $\text{MnO}$  and

5 mixtures thereof.

28. (Withdrawn- currently amended) The method as in claim [[13]] 27 wherein the melting of the glass is performed in the temperature range of 1,200 °C to 1,250 °C in platinum crucibles in a dry argon atmosphere for from 4 to 5 hours.

29. (Withdrawn - currently amended) The method as in claim [[13]] 27 wherein the annealing of the glass is performed in the temperature range of 320 °C to 340°C for from 8 to 10 hours.

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)



38. (Canceled)